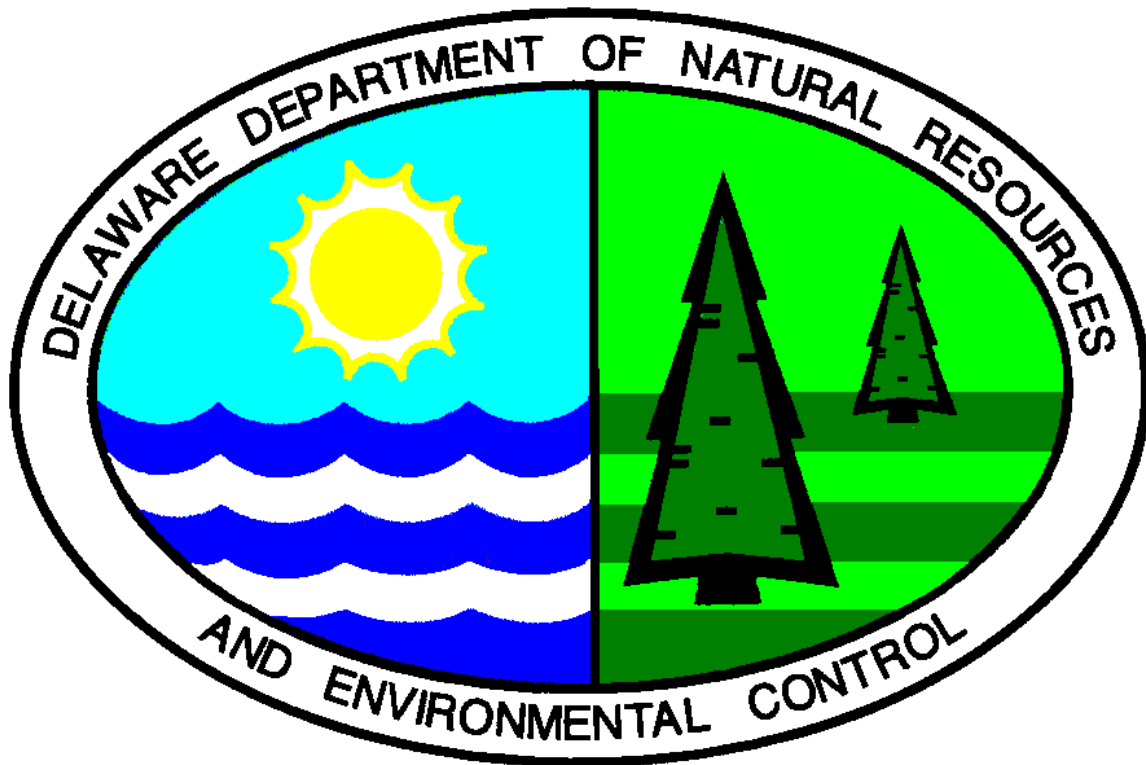


**Wilson Street East Site
Final Plan of Remedial Action
DE1108**



June 1998

**Department of Natural Resources and Environmental Control
Division of Air and Waste Management
Site Investigation and Restoration Branch**

Table of Contents

I.	INTRODUCTION.....	1
II.	ORGANIZATION AND CONTENTS OF THE PROPOSED AND FINAL PLAN.....	1
III.	SITE DESCRIPTION.....	1
IV.	SITE HISTORY	2
V.	REMEDIAL INVESTIGATION PROCEDURES.....	2
VI.	REMEDIAL INVESTIGATION RESULTS.....	3
	A. GENERAL INFORMATION	3
	B. GROUNDWATER.....	3
	C. SOILS	3
VII.	INTERIM ACTION	4
VIII.	FACILITY REMEDIAL ACTION OBJECTIVES.....	4
IX.	RISK EVALUATION SUMMARY	4
X.	FINAL REMEDIAL ACTION PLAN	5
XI.	DECLARATION.....	5

List of Figures

FIGURE 1 - SITE LOCATION	6
--------------------------------	---

Wilson Street East Site Final Plan of Remedial Action

I. Introduction

The Delaware Department of Natural Resources and Environmental Control (“DNREC”) performed a Remedial Investigation (“RI”) of the Wilson Street East Site (“Site”) under the Delaware Hazardous Substance Cleanup Act (“HSCA”) 7 Del. C. Chapter 91. Based on the comprehensive environmental investigations performed for the Site and the interim action taken at the Site, DNREC concluded that the Site, in its present condition, does not present an unacceptable risk to public health, welfare or the environment.

II. Organization and Contents of the Proposed and Final Plan

DNREC issues this final plan under the provisions of HSCA and the Regulations Governing Hazardous Substance Cleanup, (“Regulations”). The final plan presents DNREC’s assessment of the health and environmental risks posed by the Site and plans for limited further action.

In accordance with the Regulations, DNREC provided notice to the public and an opportunity for the public to comment on the proposed plan in accordance with Section 12 of the Regulations. At the comment period’s conclusion, (4:30 p.m., June 27, 1998), DNREC did not receive any substantive comments to the proposed plan. Therefore, DNREC issues this final plan of remedial action. The final plan of remedial action designates the selected remedy for the Site. The proposed plan, the comments received from the public, DNREC’s responses to those comments, and the final plan of remedial action constitute the remedial decision record.

Section 8 of the Regulations discusses the contents of the proposed and final plan of remedial action of the Regulations. The final plan contains a description of the following site information:

- A summary of the procedures, analytical results, and conclusions of the remedial investigation,
- A discussion of objectives,
- A summary of the risk assessment results, and
- A plan for the site’s future.

III. Site Description

The Site is located within the City of Wilmington, New Castle County, Delaware, see Figure 1. The Site is located within the block bounded by Tenth Street, Eleventh Street, Wilson Street and Clifford Brown Walk (Formerly Poplar Street). The Site covers

approximately 0.3 acres. The Site is bounded to the north, east, and south by rowhouses and to the west by Wilson Street.

The Site is characterized by rolling hills and is underlain by the Wilmington Complex (a meta-igneous and meta-sedimentary crystalline “bedrock”) which is overlain by approximately 20 to 50 feet of sandy silt to silty clay material. Fracture orientation and frequency control groundwater flow in this area. Well yields are generally low, with the average residential well yielding about one gallon per minute. Groundwater is also present in the overlying silty clay material (regolith). Groundwater in the regolith would flow in an easterly direction and eventually intercept the Brandywine Creek. However, since the Site is located in the City of Wilmington, public water and sewer serves both the surrounding buildings and the Site.

Site surface elevations range from approximately 40 feet above mean sea level (MSL) in the stretch of the alley that reaches toward Clifford Brown Walk to approximately 50 feet above MSL near the southwest corner of the Site. Surface drainage from the Site flows to the east eventually intercepting the City of Wilmington combined sewage and stormwater collection system inlets along, Wilson Street, Clifford Brown Walk, and Eleventh Street.

Soil Survey for New Castle County, Delaware describes the on-site soils as Made Land, which typically describe land that has been filled with soil materials, debris, or both. In addition, Made Land has been so altered or disturbed by urban works and structures that soil classification is not feasible.

There are no mapped wetland areas present on the Site. There are no wetland plants or hydrology present on the Site.

There are no underground storage tanks present on the Site.

IV. Site History

The Site previously contained a series of brick structures that used to be rowhouses (residential use) as early as 1884. Between 1972 and 1981, the rowhouses located on the Site were demolished, and Site was covered with crushed stone and used as a parking lot.

In the past the rowhouses were heated by coal fire furnaces and then later by oil fire furnaces.

The Site is currently under the care of the Bracebridge Corporation Inc. (Bracebridge) and the whole footprint of the Site is slated for redevelopment as a day care facility with a surrounding asphalt apron for parking. Bracebridge has entered into a voluntary agreement with DNREC to perform the investigation and cleanup.

V. Remedial Investigation Procedures

DNREC conducted an extensive review of past investigations prepared for the Site. After review of the work conducted, DNREC worked with Duffield Associates, Inc. (Duffield), the consultants for Bracebridge, to develop a Work Plan to address the following:

- Determine the presence or absence of contaminants in the underlying fill; and if present, determine the contaminant fate and transport, and
- Determine the presence or absence of a source in the underlying soils and if present to remove the source.

The Work Plan called for the following tasks:

- Re-sample and analyze the Site soils;
- Re-sample and analyze the Site groundwater;
- Develop a profile of the volume of material impacted;
- A risk assessment, if necessary, both human health and/or ecological, and
- A FS, if the Site poses an unacceptable risk to human health and the environment.

VI. Remedial Investigation Results

The following is a brief summary of the results of the investigations for the Site.

A. General Information

All surrounding buildings and structures are currently connected to public water and waste water systems. The Site will be connected to public water and waste water systems. A home heating oil upright tank (approximately 250 gallons) was found in the demolition fill from the rowhouse demolition in the 1970's. The home heating oil tank was empty and showed no signs of residuals from the home heating oil and field screening techniques did not report any residual oil inside the tank.

B. Groundwater

Groundwater reported elevated concentrations of petroleum, typed as gasoline and metals (cadmium and zinc) above the drinking water primary and secondary standards. Please note, the City of Wilmington's water distribution system provides service to the area.

The nearest surface water body is the Brandywine Creek, which is approximately ¼ mile to the east of the Site.

C. Soils

The 1970's demolition debris fill (1970's fill) contained but not limited to the following: brick, concrete, ash, wood. Beneath the 1970's fill was interbedded silts, clays, and sands. In the 1970's fill, elevations of arsenic, beryllium, lead, and zinc were elevated above the HSCA Residential Remediation Standards. In addition, in the 1970's fill material, elevated concentrations of several of polynuclear aromatic hydrocarbons (PAH's) were detected.

Soil samples collected in the underlying native material (e.g. under the 1970's fill) only reported elevated concentrations for beryllium which were above the HSCA Residential Remediation Standards. The beryllium concentrations found at the Site in the native materials were consistent with background concentrations for beryllium in the Piedmont region of New Castle County, Delaware. Therefore, beryllium in the native materials at the Site is not a constituent of concern.

VII. Interim Action

The agreement with Bracebridge provided that if during the course of investigation means became apparent to reduce the contamination or prevent its spread appropriate action would be taken immediately. Therefore the following remedial interim actions have occurred:

- **Home Heating 250 gallon Oil Tank:** The home heating oil above ground tank buried at the Site was removed from the 1970's demolition debris and properly disposed of off-site.
- **Soils Surface and Subsurface** The surface and subsurface soils and 1970's fill was excavated from the Site and properly disposed of off-site. The area of excavation covered the whole footprint of the Wilson Street East Site with the exception of an area immediately adjacent to a 100-year-old shade tree located in the rear of the building. Some areas of the excavation extended twelve (12) feet below the surface. In total approximately, 6,456.71 tons of material (approximately 4,200 cubic yards) were excavated from the Site and disposed of properly off-site.

VIII. Facility Remedial Action Objectives

The Regulations provide that DNREC sets objectives for land use, resource use, and cleanup levels that are protective of human health and the environment. The following objectives are determined to be appropriate for the Site:

- Prevent residential exposure to impacted media, and
- Continue the use of public water and sewer for all purposes to the surrounding community,

These objectives are consistent with the value of the Site as part the surrounding land use, New Castle County zoning policies, state regulations governing water supply, and worker health and safety.

IX. Risk Evaluation Summary

Duffield performed a health risk assessment to evaluate the possible effects on human health from the use of the Site consistent with the objectives discussed above.

The Risk Evaluation ("RE") evaluated whether there was a possible health risk and/or environmental impacts from the release of hazardous substances from the Site. Given that

nearly all the residents in the immediate area are connected to municipal water supply and the interim action removed all soil, wood, and 1970's building debris, there is no completed pathway for exposure for any potential ecological or human receptors in the area.

X. Final Remedial Action Plan

Based on the results of the Remedial Investigation and Feasibility Study and the Interim Action at the Site, DNREC concludes that the risks at the Site are acceptable with a restricted groundwater access. Therefore, DNREC will:

- Restrict drinking water access and create a groundwater management zone for the Site.

XI. Declaration

This Final Plan of Remedial Action for the Wilson Street East Site is protective of human health, welfare, and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

Nicholas A. Di Pasquale, Director
Division of Air and Waste Management

JFBS/jfbs/JFB98091.DOC
Wilson Street East Site
DE1108 II B9

Figure 1 - Site Location

JFBS/jfbs/JFB98091.DOC
DE1108 II B9